A Five-Stage Approach for Improving the Processes of Student Admissions Application for Postgraduate Programmes at UWI

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Abstract: Business Process Modelling (BPM) in systems engineering is the activity of representing processes of an enterprise, so that the current process could be analysed and improved. The adoption of BPM would assist organisations in visualising the processes that should be aligned with their values and capabilities. This paper explores the concepts associated with process mapping, business process re-engineering, total quality management, and lean thinking into process improvement in an academic setting of the School for Graduate Studies and Research (SGSR) at The University of the West Indies (UWI). With respect to the nature of SGSR operations, an attempt was made to derive a 5-stage BPM approach for mapping process improvements. This paper presents the process improvement initiatives using the selected processes associated with student admissions application into postgraduate programmes of UWI. Problems and factors affecting these processes are identified and the process maps are redesigned. It is recommended for the SGSR to implement the re-designed processes and test the effectiveness and efficiency of the new processes in handling student admissions application. Future research could validate the adoption of 5-stage approach on mapping core processes in other operational groups at SGSR. The lessons accomplished would provide insights for other academic units and institutes in an attempt to improve the design and delivery of their processes with the BPM initiative.

Keywords: Process mapping, BPM approach, student admissions, the SGSR, OSGR, UWI

1. Introduction

At St Augustine Campus of The University of the West Indies (UWI), the School for Graduate Studies and Research (SGSR) has been working with the Office of the Graduate Studies and Research (OSGR) towards aligning the core activities with the university’s strategic initiatives, as related specifically to the responsibilities of the unit, with recruitment, enrolment and throughput being prime targets (Pun, 2013). The SGSR is regarded as an operational entity within the university context. It has been providing administrative services to various faculties, departments and teaching units on graduate studies and research. ISO 9001 requires such an entity to follow a process approach when managing its business (ISO, 2010), and to this end creating business process maps would assist (Wikipedia, 2014). The entity can then work towards ensuring its processes are effective (the right process is followed the first time), and efficient (continually improved to ensure processes use the smallest amount of resources).

Business Process Modeling (BPM) in systems engineering is the activity of representing processes of an enterprise, so that the current process may be analysed and improved (Jacka and Keller 2011; Wikipedia, 2014). The OSGR had since January 2013 been piloting a new structure with eight (8) operational groups, namely 1) Application; 2) Examination and Research Projects; 3) Student Matters; 4) Research – MPhil and PhD Programmes; 5) Graduation; 6) Appointment of External Examiners and Scripts; 7) Secretary; and 8) Research and Publication and Scholarships (Pun, 2013). These groups are manned with current staff members and each has its core responsibilities and led by a delegated group leader.

There has been a need for the SGSR via the OSGR to diagnose and design/re-design its core processes and improve its operational efficiency and effectiveness in line with the re-structuring goals. The paper aims to identify the problems and factors affecting the selected processes under the Application group. This operational group is responsible for handling student admissions application into postgraduate programmes that represents the beginning of the students’ interaction with the SGSR. A generic 5-stage approach was derived and used to guide this BPM initiative.

2. Literature Review

2.1 Business Process Modelling and Mapping

A business process is a collection of related, structured activities or tasks that produce a specific service or product (serve a particular goal) for a particular customer or customers. According to Wikipedia (2014), there are three (3) main types of business processes:

1) Management processes that govern the operation of a system. Typical management processes include corporate governance and strategic management.
2) Operational processes that constitute the core business and create the primary value stream. Typical operational processes are purchasing, manufacturing, marketing, and sales.

3) Supporting processes that support the core processes. Examples include accounting, recruitment, and technical support.

A business process can be decomposed into several sub-processes, which have their own attributes, but also contribute to achieving the goal of the super-process. The analysis of business processes typically includes the mapping of processes and sub-processes down to activity level. A business process model is a model of one or more business processes, and defines the ways in which operations are carried out to accomplish the intended objectives of an organisation. Such a model remains an abstraction and depends on the intended use of the model. It can describe the workflow or the integration between business processes. It can be constructed in multiple levels.

BPM is typically performed by business analysts and managers who are seeking to improve process efficiency and quality. Process maps serve as a visual aid and graphical descriptions (such as flow-charts, work flow diagrams and value stream maps) for representing work processes, and help align system rudiments in the same direction to foster an atmosphere for improvements (Wikipedia, 2014). Process mapping has in recent years developed due to software tools that can attach metadata to activities, triggers and drivers to provide a complete understanding of processes. Process mapping is no longer two-dimensional but multi-dimensional, and is capable of supporting various business goals (Cooper, 2014). Hence, the process improvements identified by BPM may or may not require Information Technology involvement, although that is a common driver for the need to model a business process.

Jacka and Keller (2011) contended that the BPM approach would help develop the customer focus of a process, lend a hand in eliminating unnecessary actions and reduce the complexity of the process thus adding to process improvement. According to Wikipedia (2014), four (4) major steps of process mapping are identified. These are:

1) Process identification - attaining a full understanding of all the steps of a process.
2) Information gathering - identifying objectives, risks, and key controls in a process.
3) Interviewing and mapping - understanding the point of view of individuals in the process and designing actual maps.
4) Analysis - utilising tools and approaches to make the process run more effectively and efficiently.

2.2 Common Approaches of Process Improvements

Business process re-engineering (BPR), total quality management (TQM), and lean thinking are among three common approaches utilised to gain and sustain process improvements (Pun and Deonarine, 2008; Cooper, 2014). Hammer and Champy (1993) expressed BPR as the fundamental rethinking and radical redesign of present processes in an effort to attain improvement in key areas of performance such as cost, quality of service and timeliness. BPR is centred on the customer’s value experience and seeks out ways to eradicate all actions that do not add value for the customer. One main purpose for implementing BPR is to produce major improvements in customer experience through “radical redesign” and “fundamental rethinking”.

Unlike BPR, TQM places prominence on changing the mindset and culture of people. TQM focuses on incremental, unremitting improvement, and is described as corporate culture exemplified by an increase in satisfied customers as a consequence of active employee participation (Pun and Lau, 2003).

Lean thinking is similar to TQM with regards to the incremental approach to process improvement (Womack and Jones 1996). Over the years, Lean concept has spread from production processes to other non-production processes including administrative operations (Alpel et al., 2007). It is stated that activities that do not provide value are a waste and should be eliminated. Therefore, a crucial element of Lean is the removal and/or the elimination of non-value added steps contributing to the streamlining processes, taking into account the customer’s point of view (LERC, 2014). Table 1 depicts the focal concepts among BPR, TQM and lean thinking.

3. A 5-Stage Approach of BPM for Mapping Process Improvement

Built upon the four common steps of process mapping (see Section 2.1), a generic approach of BPM is derived, incorporating the concepts of process understanding via BPR (Hammer and Champy, 1993), and identifying non-value added steps in the process, non-process and process-

<table>
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<td>Lean Thinking</td>
<td>Identification and reduction of wastes</td>
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based problems through TQM and Lean thinking (Womack and Jones 1996; Pun and Lau, 2003). The proposed approach has five (5) stages. These are:

Stage 1: Understand the steps of the process - to understand the steps involved in a process through observation, interviews, questionnaires, archival records and documentation. Process understanding is a crucial part of process development. Understanding the process from the perspective of the stakeholders (such as users, customers, and employees) is important to this step.

Stage 2: Determine non-value added steps – i.e., to determine the non-value added steps in the process and identify the problems and factors that affect the process indirectly. Although some steps may not add value directly, they may contribute indirectly to the process. A thorough cause and effects analysis could confirm the non-value added steps to be eliminated. Besides, a step is irrelevant to one process but might be relevant to another process. In such instance, the steps to be eliminated in one process could be incorporated into another process.

Stage 3: Identify process- and non-process based problems – i.e., to determine process- and non-process based problems and identify the causes. These problems are to be analysed, and suggestions of corrective and/or improvement actions be sought to eliminate/reduce them.

Stage 4: Rectify problems and redesign the steps – i.e., to rectify the problematic steps in the process and justify for redesign of steps. The employees involved should be questioned about the steps that take too much time or too much work. They should also be questioned about steps in the process that hinder the progress of other steps. Once the problems are identified they should be analysed and steps should be taken to rectify the problems. The steps could be re-adjusted or changed completely from the process.

Stage 5: Develop the to-be process maps – i.e., to combine and redesign to-be process incorporating the results from the previous stages. It is crucial for the success of the redesigned processes and all the explanations for the changes made for the user evaluation and management approval.

4. A Case Study: The Student Admissions Application of Postgraduate Programmes at UWI

The SGSR has since 2011 embarked on an initiative to restructuring the processes of the OGSR at UWI, St Augustine Campus. This case is concerned with identifying the factors affecting the efficiency and effectiveness of the work alongside the processes and hence adopting the 5-stage BPM approach for mapping process improvements. The focuses have been put on re-designing and streamlining the core processes of the student admissions application of both taught and research postgraduate programmes.

4.1 Understand the Steps of the Process

Process understanding was done through the use of several data acquisition techniques. Documentation and archival data was used to develop preliminary process maps and interviews and questionnaires were used to gain understanding of the processes of student admissions application of postgraduate programmes. The current status (‘As-is’) process maps were then developed. Personal interviews with employees were made to acquire views on the steps and issues of student admissions application. These maps were then modified based on their perception of the ‘As-is’ processes. Focus on the customer/student issues would also be incorporated in the improvement process.

Based on the diagnosis of the process on student admissions application, several issues, affecting both the effectiveness and efficiency of the process, are identified. These included network disturbances, transfer of documents to and from departments, searching for loose documents, matching and placing loose documents together with stacked documents and staff performing multiple duties.

From the student perspective, one common issue would be the tracking of application. Having regards the increasing numbers of applications per course in a large amount, these applications need to be sorted, wait for outstanding documents, attach loose documents and then be pushed into the system for tracking. Hence, the tracking process for students has always been lagging. Another issue with the Application process would be the online display of courses and documents that should be submitted when applying for the distinguished course. Although the information has been posted on the web site, some students (mainly mature students) might not be versed with the online system and prefer printed copy documentation (e.g., booklets, pamphlets, etc.).

4.2 Determine Non-Value Added Steps

After identifying the current process, the second stage began with the determination of non-value added steps. Questionnaires and interviews were conducted and the problems identified were split into three categories; Non-value adding steps, non-process based or external problems and process based problems. The applications process was understood, and the non-valued added steps were identified and then either eliminated or modified. Figure 1 illustrates some of non-value added steps identified and the changes made, respectively. For instance, while some steps do not add value to the applications process, they might be important to other departments. These steps should therefore be included in the departmental process. As illustrated, the first step does not add value to the process directly. However, it is important because it ensures that the other crucial steps in the process are completed on time. The second and third steps are modified to exclude the preparation and distribution of the advertisements.
4.3 Identify Process- and Non-Process Based Problems

The third stage was to determine process-based and non-process based problems, and identify factors affecting the time and effectiveness of the process. The common problems identified were 1) network disturbances, 2) students not being aware of the documents that they need to submit, and 3) the storage of loose documents. To tackle these problems, for instance, the Campus IT department could ensure that student must print a file containing all the required documents before they complete the application process online. This would assist the Admissions Team at OGSR in storing the documents for respective students. A proper document management system (DMS) would improve the process flow because files could be accessed readily.

4.4 Rectify the Problems and Redesign the Steps

This was to rectify the problems by eliminating and/or minimising them. An analysis of process redesign was conducted, and steps were adjusted for non-value added and process-based problems. One major problem rectified was to search for loose documents from student files at OGSR. Instead of storing loose documents in a folder, the documents could be scanned and made available on the DMS. The hard copies could be filed for later use. To ensure that student files are stored in the correct place, the student’s name would be indexed and their files be uploaded in a specific location using the file type. The transcripts and referee reports (which would usually be sent via mail) would be scanned and added to DMS. The clerks could then access the scanned documents from the system directly (see Figure 2).

4.5 Development and Evaluation of the ‘To-Be’ Process Maps

The current processes were analysed, the non-value added steps were either modified or eliminated. The process-based problems were rectified through the re-design of the process steps. Suggestions on the reduction and/or elimination of the non-process based problems would be made. The implementation of re-designed processes for student admissions application would rely on the IT supports. Figure 3 illustrates the ‘To-be’ process.
With respect to the redesign of processes, for instance, the clerk could then access students’ documents (e.g., transcripts) that are available via the DMC. Adding this system automatically would also reduce the likelihood of documents being lost. Once the clerk checks the system and note that documents are outstanding an email is sent to the student. The changes would reduce the time taken by the faculty clerks searching for loose documents. This would then reduce the likelihood of documents being replaced in transit from one person to another.

Hence, the development of ‘To-be’ process maps would be subject to objective evaluation by senior management. This would determine whether the re-design of processes and the ‘to-be’ process maps could fit for purposes. The management feedback on monitoring the process from the internal and external views would promote the BPM initiative. Moreover, presenting the re-design of processes and explaining the ‘To-be’ process maps...
maps to the stakeholders (such as users, staff and customers, etc.) and getting their views could improve on the process.

5. Conclusion
The pursuit of performance excellence as a way of managing businesses has been increasingly recognisable (EFQM, 2013). The main purpose behind BPM is to assist organisations like the SGSR in becoming more efficient and aligning with their corporate values and capabilities (Jacka and Keller, 2011). There would be a research venue for investigating and integrating the BPM initiative into fostering process improvements with concentration on the human-organisation interface.

This paper presents the BPM initiative of improving the processes of student admissions application to postgraduate programmes at UWI. This paper demonstrates the use of the 5-stage BPM approach derived for mapping process improvement. It verifies the use of BPM that could help drive the increase in the efficiency and effectiveness of the processes. It is recommended for the SGSR to implement the re-designed processes and test the effectiveness and efficiency of the new processes in handling student admissions application.

Future research could validate the adoption of 5-stage approach on mapping core processes in other operational groups within the SGSR/OGSR. Comparative evaluations and case studies are suggested to examine the determinants of process improvement among these processes. Moreover, there is a need to investigate the extent to which the employment of the proposed BPM model would contribute towards achieving sustainable performance at SGSR/OGSR. The adoption of the approach could be extended to other academic units at UWI as well as other institutes and departments.

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